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# A REVIEW OVER ROLE OF KAKODUMBARADI LEPA IN THE MANAGEMENT OF KILASA (VITILIGO)

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## ABSTRACT

Everybody wants a flawless beautiful skin. Any mark or blemish on skin makes the person conscious. *Kilasa* or *Shwitra* (Vitiligo) is a skin disease which makes the patient psychologically ill and thus needs to be managed. For managing any disease, either *Bahirparimarjana Chikitsa*(topical administration of drugs) or *Antahparimarjana Chikitsa* (oral administration of drugs) is done depending upon the disease. For managing skin diseases, both are done but *Bahirparimarjana Chikitsa* is comparatively more effective because of local action at the site of disease manifestation. In *Bahirparimarjana Chikitsa*, various formulations have been used since ancient times in the form of *lepa, abhyanga, avagaha, parisheka*, etc. These locally administered drugs are absorbed through skin and act with the help of *Bhrajaka pitta.* Out of these methods of drug delivery, *lepa* is a widely used formulation. To treat *Kilasa* (Vitiligo), a very effective *lepa* consisting of *Kakodumbar, Bakuchi* and *Chitrak* triturated in cow's urine has been mentioned in *Charak Samhita.* This *lepa* is applied on the depigmented blotches followed by sun exposure.

**KEYWORDS:** Skin, Kilasa, Bahirparimarjana Chikitsa, Bhrajaka pitta, Kakodumbaradi lepa.

## INTRODUCTION

A beautiful skin attracts everyone. So everyone wants his/her skin to look beautiful. A healthy beautiful skin depends on proper nutrition and proper functioning of other systems of body as many systemic diseases are reflected in skin. Skin is an organ of both immune system and sensory system.

Skin diseases have a wide range of signs and symptoms. Some skin diseases are acute while others are chronic, some are acquired while others are inherited, some are painless while others are painful. *Kilasa* (Vitiligo), also known as *Shwitra* is a painless chronic acquired skin disease with genetic component.

Skin diseases are managed by giving drugs via both oral (*Antahparimarjana Chikitsa*) and topical routes (*Bahirparimarjana Chikitsa*). To prevent systemic complications of orally administered drugs, topical route of drug administration is preferred. Also, as the site of disease manifestation is skin, *Bahirparimarjana Chikitsa* is comparatively more effective. Topically, the drugs may be used in the form of *lepa, pradeha, abhyanga, avachurnana*, etc. depending upon the disease. *Lepa* is practically very easy for application.

An effective *lepa* has been mentioned in *Charak Samhita* for the management of Kilasa (Vitiligo). This *lepa* consists of *Kakodumbar, Bakuchi* and *Chitrak* in equal amounts triturated in cow's urine.

### Twak

The term *'twacha'* is derived from *'twak samvarne dhatu'* meaning covering of the body. Its synonym *'Charma'* is derived from '*Shariraavarakam shashtram charma ityabhidhiyate'*. These derivatives indicate immunological function of the skin because skin acts as first barrier against infections by covering the body. *Twak* has been called as *'Sparshanendriyadhishthana'*[1] i.e. organ for touch sensation. *Rupa* and *varna* are also reflected in skin. *Kilasa* is a disease affecting *rupa* and *varna* of the patient.

*Acharya Charaka* has mentioned six layers in skin out of which the *third layer* is the seat of *Sidhma* and *Kilasa.*[2] *Acharya Sushruta* has mentioned seven layers of skin along with their names, thickness and the diseases which

occur in that particular layer. These layers are *Avabhasini, Lohita, Shweta, Tamra, Vedini, Rohini* and *Mamsadhara*. *Kilasa* occurs in *tamra, i.e., fourth layer*.[3]

**Kilasa**

*Kilasa* or *Shwitra* (Vitiligo) is a systemic disease and the site of manifestation is skin. The disease is clinically characterized by depigmented white patches in skin. The exact etiology of *Kilasa* (Vitiligo) is still obscure. But the proposed hypotheses are *Neural theory*[4], *Autoimmune Hypothesis*[5], *Reactive oxygen species model*[6], *Zinc – α2 – glycoprotein deficiency hypothesis*[7,8,9], *Viral theory*[10], *Intrinsic theory*[11,12], *Biochemical, molecular and cellular alterations which account for loss of functioning melanocytes*[13], *Integrated theory (Conversion theory).*[14] The management of disease is not 100% successful till date because of the uncertain course of the disease.

**Lepa**

In *Ayurveda*, the treatment of all diseases comes under two main groups viz. *Antahparimarjana Chikitsa* in which the drugs are administered orally and *Bahirparimarjana Chikitsa* which involves topical administration of drugs. *Lepa* application comes under the group of *Bahirparimarjana Chikitsa.*

*Lepa* is also known as *aalepa, lipta or lepan.*

*Lepas* have been divided into three groups: *Doshaghna, Vishaghna* and *Varnyakara.*

आलेपस्य च नामानि लिप्तो लेपश्च लेपनम् ।
दोषघ्नो विषहा वर्ण्यो मुखलेपस्त्रिधा मतः ॥[15]

**Topical Absorption and Action of Ingredients of Lepa Through Skin**

It is very important to understand the mechanism of action of these locally applied drugs.

*Acharya Sushrut* has beautifully described the method of application and mechanism of absorption and action of the *lepas*-

तत्र प्रतिलोममालिम्पेन्नानुलोमम् । प्रतिलोमे हि सम्यगौषधमवतिष्ठते अनुप्रविशति रोमकूपान् स्वेदवाहिभिश्च सिरामुखैर्वीर्यं प्राप्नोति ॥[16]

According to *Acharya Sushrut*, the *lepas* must be applied in the direction opposite to that of hair follicles, and not in the same direction so that they are absorbed through the hair follicles, sweat glands and blood vessels to perform their function.

Any drug is absorbed through the epidermis, hair follicles, sweat glands and sebaceous glands. Since, the hair follicles and glands constitute only 0.1-1% of the total skin surface[17], the maximum absorption of drugs is through the epidermis.

The substances applied to the skin are absorbed from the skin with the help of *vyana vayu* which is present in entire body including skin as *vata dosha* is responsible for '*upashoshana*'(Absorbtion). '*Bhrajaka pitta'* is responsible for the metabolism of the drugs.[18] The vehicle used in the *lepa* should be *Ashukari* and *teekshna* to help the absorption and metabolism of the drugs. The ingredients of the *lepa* should be *Sukshma* and *laghu* so that they are easily absorbed through the skin pores. The degree and rate of absorption of the drugs vary greatly between different drugs and different vehicles.

This depends on many factors viz. concentration, molecular weight of the molecule, duration of contact, solubility of medication, physical condition of skin, part of the body exposed, amount of hairs on the skin.

**Thickness of Lepa**

*Acharya Sharangdhara* has described that how thick the *lepa* has to be applied according to the need.[19]

1. *Doshaghna lepa*: one-fourth thickness of finger
2. *Vishaghna lepa:* one-third thickness of finger
3. *Varnya lepa:* one-half thickness of finger

*Lepas* for *Kilasa* come under the category of *Doshaghna lepas* as these help remove the harmful substances hampering the melanogenesis and help stimulate melanogenesis.

**Kakodumbaradi Lepa**

काकोदुम्बरिका वा सावल्गुजचित्रका गवां मूत्रे ।[20]

The *lepa* has been mentioned in *Charak Samhita* under *Shwitra(Kilasa) chikitsa*. It contains equal proportions of *Kakodumbar*, *Bakuchi* and *Chitrak* which are triturated in cow's urine till it becomes a uniform fine thin paste.

**Bakuchi *(Psoralea corylifolia)***

**Family** **:** Leguminosae

***Synonyms***

**Sanskrit** **:** *Bakuchi, Somaraji, Induraji, Indulekha, Avalguja, Chandralekha, Chandrashakala, Suparnika, Shashankalekha, Shashilekha, Putiphali, Krishnaphala, Somavalli, Kushthanashini, Durgandha, Kushthaghni, Kalmeshi*.

**Hindi** **:** *Bhavaj, Babachi, Bakuchi*

**English :** Babchi seeds, purple fleabane, Malay tea, Scurf-pea, Fountain bush, West Indian Satinwood

**Latin name** **:** *Psoralea corylifolia* Linn.

*'Kushthagni'/ 'Kushthanashini',* is a very famous and relevant synonym of *Bakuchi* and it is a plant used for *Kilasa* (Vitiligo) since thousands of years ago.

- **Active principles:** Bakuchinol(phenol), Isopsoralen, Psoralen, Psorelidin, Isopsoralidin, Dehydroisopsoralidin and Corylifolen.[21] On exposing the site of white patches to UV rays (present in sunlight) after applying the *lepa*, Psoralen stimulates melanogenesis (by stimulating

melanoblasts) which is hampered in *Kilasa*(Vitiligo).[22]

- *Bakuchi* also acts as nervine tonic. So it may have some role in segmental vitiligo.
- *Bakuchi* leads to sweat secretion and removal of toxins hampering melanogenesis.
- *Bakuchi* improves blood circulation and thus leads to increased supply of oxygen and nutrients to melanocytes.
- *Kilasa(Shwitra)* is believed to be due to *sleshmala ahara sewana* also. As *bakuchi* is *katu-tikta rasa, katu vipaka* and *usna veerya dravya*(substance), it acts as *anti-shleshma* substance and may play a role in vitiigo.

**Kakodumbar *(Ficus hispida)***
**Family** **:** Urticaceae
***Synonyms***
**Sanskrit** **:** *Falgu, Malayu, Jaghnephala, Moolakarkati, Shwitra bhaishajya, Kashthodumber.*
**Hindi** **:** *Kathumara*
**Latin name** **:** Ficus hispida

*Kakodumbara* is a tree which is also known by the name *'Shwitrabhaishajya'*. Bark of this tree is used in *Kilasa*(Vitiligo).

- In the bark, Psoralen is present which stimulates melanogenesis.
- Because of *ruksha-laghu guna, tikta-kashaya rasa* and *katu vipaka, kakodumbara* also acts as *shleshmahara* substance and so it plays a role in Vitiligo.

**Chitrak (*Plumbago zeylanica*)**
**Family** **:** Plumbaginaceae
**Synonyms**
**Sanskrit** **:** *Chitrak, Vahnisangyak, Dahan, Anala, Agni, Peethi*
**Hindi** **:** *Cheeta, Chitrak*
**Latin name** **:** *Plumbago zeylanica* Linn.
*Chitrak* is a herbaceous plant well known for its positive effect in melanogenesis.

- The *lepa* causes redness and may lead to formation of blisters because *Chitraka* is highly *Usna Veerya dravya. Bakuchi* in the *lepa* also leads to redness or blister formation. When blisters heal, fresh skin comes at the site of application of *lepa*. Melanocytes may be stimulated in all this process to give color to the new skin.
- Because of its *deepana karma*, it may stimulate *Dhatvagni* and so melanogenesis.

**Gomutra(COW'S URINE) and its medicinal properties**
*Gomutra*(cow's urine) has been used widely in *Ayurveda* since thousands of years ago. It has been described in all the classical texts of *Ayurveda* as an effective medicinal substance of animal origin having therapeutic properties. *Bhav Prakash* has said *gomutra* (cow's urine) to be best among animal urines.[23]

Cow's urine is an *Ushna Veerya, Katu-Tikta-Kashaya Rasa* substance with *laghu* and *teekshna gunas*.

*Gomutra*(cow's urine) has been used as the vehicle to deliver drug because of its *ashukari, usna* and *teekshna* properties which helps in the fast absorption of the active ingredients present in the drug. It also helps in healing of blisters formed due to *Chitrak* and *Bakuchi*. The allantoin present in *gomutra*(cow's urine) contributes to its wound healing effect.[24] *Usna veerya* of *gomutra* may also stimulate melanogenesis. Cow's urine also has anti-oxidant property and thus may help in removal of anti-oxidants which hamper melanogenesis.[25]

**Method of Application of Kakodumbaradi Lepa**
1. First, the fine powder consisting of equal proportions of *Kakodumbar, Bakuchi* and *Chitrak* is triturated in cow's urine till it becomes a uniform fine thin paste.
2. Then, a thin layer of this paste is applied on the white patches.
3. After 30 minutes, the patient is asked to sit in sunlight for 5 minutes. If redness appears on the white patches within 48 hours, then this duration of sun exposure is fixed. If no redness appears within 48 hours, then the duration is increased by 5 minutes per sitting till redness appears within 48 hours of sun exposure and that duration of sun exposure is fixed. Maximum duration of sun exposure is 45 minutes.
4. The *lepa* is applied on alternate days.

It is well known that sun's ultraviolet rays stimulate melanogenesis and so the patients of *Kilasa* (Vitiligo) are advised sun exposure after application of *Lepa*.

**Mode of Action of Kakodumbaradi Lepa**
In *Kilasa*, melanogenesis is abnormal finally leading to decreased synthesis of melanin pigment. Considering the concept of '*Sarvam hi dravyam panchbhautikam', vayu* and *agni mahabhuta* may be decreased. *Acharya Vagbhat* has stated that *Sleshmala ahar* taken by pregnant mother also leads to *Shwitra(Kilasa).*[26] So, *sleshmala ahar* can also lead to *Kilasa*. Such food substances lead to comparative decrease in *Agni* and *Vayu mahabhoota*. To compensate for this *Agni mahabhuta*, application of *agneya dravya* and sun bath is advised to the patients. To compensate for *vayu mahabhuta, ruksha* drugs are used. *Sleshmala ahar* leads to increase in *kapha dosha*. To decrease *kapha dosha*, drugs having *usna - teekshna* properties are used. The ingredients in the *Kakodumbaradi lepa* primarily have *ushna, teekshna* and *ruksha* properties. *Usna - teekshna* properties lead to increase in *Bhrajak pitta* thus improving melanogenesis

## CONCLUSION

Thus, *Kilasa* is a very common disease affecting the patients psychosomatically and thus needs to be managed. Skin diseases are better treated by *Bahirparimarjana chikitsa* of which *lepa* is a practically very easy method. *Kakodumbaradi lepa* mentioned by *Acharya Charak* is very effective in treating *Kilasa* (*Shwitra* / Vitiligo).

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